## (19) World Intellectual Property Organization International Bureau



## Rec'd PCT/PTO A 6 111 2005

(43) International Publication Date 29 July 2004 (29.07.2004)

**PCT** 

(10) International Publication Number WO 2004/063532 A1

(51) International Patent Classification<sup>7</sup>: 11/00, 1/08, 19/00

F01C 1/20,

(74) Agent: RIDOUT & MAYBEE LLP; Suite 308, 1 City Centre Drive, Mississauga, Ontario L5B 1M2 (CA).

(21) International Application Number:

PCT/CA2003/002031

(22) International Filing Date:

30 December 2003 (30.12.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/438,764

9 January 2003 (09.01.2003) US

- (71) Applicant (for all designated States except US): REV-OLUTION ENGINE CORPORATION [CA/CA]; 250 Campbell Street West, Listowel, Ontario N4W 1J1 (CA).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): CONNERS, James, M. [CA/CA]; 250 Campbell Street West, Listowel, Ontario N4W 1J1 (CA).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,

GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,

KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,

MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,

(84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

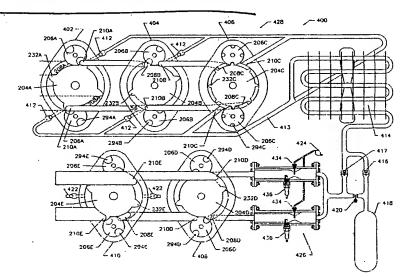
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

## Published:

- with international search report
- with amended claims

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: EXTERNAL COMBUSTION ROTARY PISTON ENGINE



(57) Abstract: An engine (400) is disclosed and comprises: a compressor (428) which periodically defines a chamber and carries out a pressurization process wherein the chamber volume is decreased to produce pressurized air; a combuster (426) which combusts fuel with the pressurized air to produce primary exhaust; an air motor (408) which is driven by the primary exhaust to produce power and secondary exhaust; an expander (410) which expands the secondary exhaust to produce tertiary exhaust and power; and a shaft (314) which directs power produced by the motor (408) and the expander (410) to the compressor (428) and any load. The combuster (426) is adapted to receive varying amounts of fuel, thereby to vary the power to the load. The compressor (428), during pressurization, releases air from the chamber such that the chamber pressure during pressurization and the primary exhaust pressure is substantially constant at steady state conditions, said constant being a function of the load being driven by the power.

0004/063532 A1